

Cultivating Innovation

Lessons from America's Chief Innovation Officers

In the summer of 2006, Trek Consulting LLC undertook a survey of Chief Innovation Officers, a new class of senior managers that has emerged at leading edge companies in recent years.¹ As corporate officers who are shouldering the responsibility for delivering growth and competitive advantage to their companies, these Chief Innovation Officers (CIO's²) represent a resource for practical knowledge about how American corporations can face the innovation challenge.

The survey focused on the practical details of how the CIO's role is structured, what they do and how they measure their success. This white paper provides insights on what we saw in the results as well as specific data from the findings.



Cultivating Innovation

You can almost hear the *Mission: Impossible* theme music thumping in the background. A senior executive steps into view. A voice begins, "Your mission, if you choose to accept it, is to create new sources of long term growth for our company. We don't know what these opportunities are or how you will find them. You will have limited authority and resources but your mission will involve our entire company. We need you to cultivate innovation to ensure our future success." Such is the mission of the Chief Innovation Officer and, indeed, senior corporate leaders across America. It's not impossible but it's certainly not going to be easy.

We are living in a period of transition from the industrial to the knowledge era. Old ways of competing and winning don't work anymore. Success is no longer based on what you do or what you own. In the knowledge era, success is based on what you know. Innovation must be a core competence for every company because competitive success will only come to those who leverage their knowledge and relationships to create better solutions to old problems and new solutions to problems yet to be identified.

As we spoke with these trailblazing CIO's, we began to appreciate that they live with a foot in both eras. The industrial era inspired their hierarchical organizations (they are, after all, "C" level executives). They use top-down deliberate strategy processes and quantitative measurement systems. However, the knowledge era will require them to develop emergent strategy processes that cultivate innovation from the bottom up by building a portfolio of intangible resources that drive new ideas and increased value. Most of their work cannot be tracked or measured in the traditional ways. To succeed, innovation leaders must deliver knowledge era innovation while working in industrial era organizations.

It is clear from our survey that today's CIO faces these contradictions every day. Many are developing innovation processes to *manage ideas*. But their challenges indicate a need for deeper solutions, to develop organizations that can *generate ideas* on a consistent basis. All have accepted the mission and are charging bravely into the unknown future. It is our hope that this paper helps them in completing their mission.

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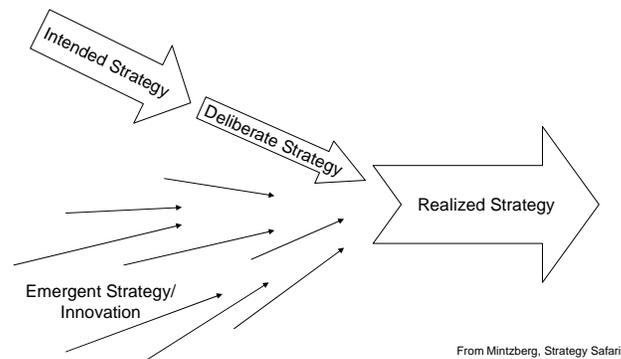
Innovation is a Different Kind of Strategic Challenge

In order to understand innovation, it is important to distinguish it from the traditional strategic thinking that companies have used on a broad scale:

Deliberate Strategies for Execution: Most organizations today have hierarchical organization charts that harken back to the industrial era. Core concepts of management and leadership focus on developing an understanding of competitive environment and strategies to win in that environment. The works of Michael Porter have been critical to describing this approach to competitive strategy. These have traditionally been called *deliberate* strategies and are most effective when information is good and the course of action is clear. Deliberate strategies are communicated from the top through “shared goals” that are enforced through compensation systems. Think about Walmart’s development in recent decades. Once established a model that worked, Walmart had a very deliberate expansion strategy. Their focus was on replication of the model to scale the business and a strong execution focus on perfecting their supply channels and costs. They knew what they wanted to do and they pursued it aggressively.

Deliberate strategies are focused on execution. They are most effective when information is good and the course of action is clear.

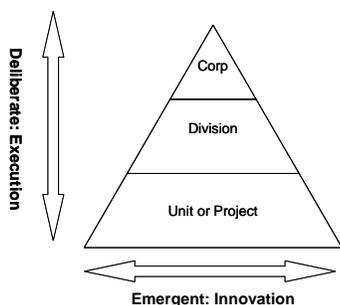
Deliberate strategy works well when the path is clear. It was the dominant model in the Industrial Economy when people in authority could describe to their employees in great detail the smartest way to accomplish their work: “take Part A, attach these two screws, then join Part A to Part B.”



While few are arguing for the end of this traditional corporate structure (not yet, anyway), the great challenges of the current economy are emphasizing the importance of a different type of strategy, called emergent strategy.³

Emergent Strategies for Innovation: In the Knowledge Economy, the nature of work is changing. Leaders of the corporation cannot know or understand the work of many of their employees well enough to dictate how they do their job. In a recent seminar we gave on Strategic Thinking, one IT manager began nodding his head vigorously when we discussed this idea. He said, "You're right. I have no idea how my people are going to solve a problem. I try to put the problem into context for them, help them shape their thinking, but they figure out the right solution."

Neither can corporate leaders identify new opportunities with the accuracy that they did when they were armed with Michael Porter's competitive analysis tools. This is because many innovation opportunities are created at the intersection between employee and/or organizational competencies and the needs of the marketplace. Opportunities can often only be detected at the employee or business unit level. Finding and exploiting these opportunities is the challenge of *emergent* strategies.



The role of a leader is different when trying to cultivate emergent strategies. The outside-in view of competitive strategy is not enough. Leaders also need to take an inside-out view of the corporate resources that create the ecosystem where innovative strategies will emerge and thrive. This innovation ecosystem is a place

where smart people share their knowledge and, often in cooperation with customers or partners, create new opportunities for growth. The field of innovation is mainly focused on fomenting these emergent strategies.

Almost every company in the U.S. pursues both kinds of strategies. A great example is the recent success of Apple's iPod. This product became a blockbuster and continues to evolve based on both deliberate and emergent strategies. Apple began this product as part of a deliberate "digital hub" strategy that sought to take advantage of the growing market for consumer digital devices. The final product was, however, the product of an emergent strategy that created a strong innovation ecosystem at Apple that fosters and encourages experimentation. In the case of the iPod, this ecosystem included partners that developed both the

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hardware and the software. The iPod continued to evolve and the switch to a very deliberate strategy involved getting access to music catalogs, aggressive advertising and market segmentation. The challenge for Apple and, indeed, all corporate leaders is to manage both of these processes and know when to use each one to greatest effect.

A Dual Approach to Innovation

The CIO clearly operates with a foot in each camp and must pursue both deliberate and emergent strategies. The duality of the innovator's challenge is described well by Thomas Stewart, the current editor of the Harvard Business Review and author of two books on intellectual capital:

The literature on innovation is considerably longer than my arm...It can be summarized as follows: Innovation is either a machine or a magic garden. Because it is a machine, companies should design it, oil it, power it up, and manage it. Because it is a garden, companies should create conditions under which it can flourish, stand back and let the magic occur, then harvest it. Innovation is both of course. That's a management problem.⁴

The machine in Stewart's explanation calls for deliberate management, including the creation of processes to manage innovation. The garden calls for emergent management, including the creation of an innovation ecosystem where new ideas can grow. Innovation leaders have to pursue both courses of action:

1 – Manage the Innovation Process: The deliberate part of innovation management is the creation of a process, Stewart's machine. This type of process usually involves some version of these three steps: sourcing ideas, qualifying them and executing the best. This process management approach is familiar to most managers and, not surprisingly, is an aspect of innovation that gets a lot of attention today.

Relying on process alone to deliver innovation is, however, like building a factory without knowing whether you will have access to power or raw materials. A factory needs a combination of resources used in unison. So, too, does the innovation process call for the availability of the right ideas and resources to fuel innovation. This points to the second task of the

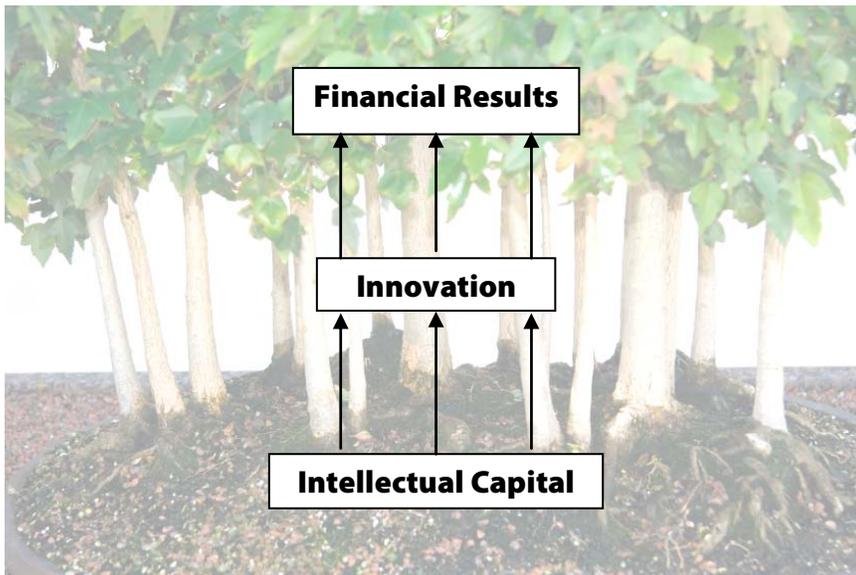
The deliberate part of innovation management is the creation of an innovation process.

innovation leader: creation of an innovation ecosystem, an innovative organization.

2 – Build an Innovative Organization: The emergent part of innovation management is the creation of an organization that has the right combination of resources in place so that new ideas emerge and succeed on a regular basis. How is this done? What are the right resources for innovation? To answer these questions, we have to look at the roots of innovation.

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Cultivating the Roots of Innovation



The roots of innovation are made up primarily of intellectual capital. When most people hear the phrase “intellectual capital,” they think of intellectual property or just pure knowledge. We use the phrase in a broader sense, to describe a portfolio of intangible value drivers that fall into three categories:

- Human Capital – Includes both employees and managers.
- Structural Capital – Knowledge, including intellectual property, know-how, processes, systems and software.
- Relationship Capital – Brands and relationships with external partners such as customers, suppliers, distributors and development partners.

In order to facilitate emergent innovation, leaders need to actively manage the intellectual capital of the corporation. Intellectual capital management ensures that the company hires and retains good people, creates an environment that is conducive to collaboration and nurtures a high value external network.

One company that is especially good at this approach to intellectual capital management is SAS, which in 2005 had its 29th straight year of revenue growth and profitability. Three things that SAS does to unite innovation and hardnosed management include helping employees do their best work by keeping them intellectually engaged and removing distractions, creating processes for making managers responsible for sparking creativity and engaging customer and creative partners in order to deliver superior products.:⁵

The challenge of innovation requires a new understanding of and approach to traditional concepts of management. But the challenge does not end there. Innovation also requires a new understanding of and approach to traditional concepts of measurement.

Can You Measure Innovation?

The ultimate metrics for innovation are revenues and profits. However, the road to the “bottom line” is too long for innovation managers to rely exclusively on these backward-looking financial metrics. Yet, corporations continue to have a strong bias for financial and quantitative metrics that have roots in our industrial past. In fact, one CIO told us, “I have to have hard numbers.” It was easy (and relevant) to quantify performance when companies were making tangible goods. It was easy to measure the time to put a door on a car, the waste in cutting a piece of metal and the number of cartons that fit in a container. But it is harder to measure intangible knowledge work and innovation in the same way.

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Thinking about performance measurement for innovation requires a change in perspective and vocabulary. Rather than performance measurement and metrics, it is more helpful to think in terms of performance *assessment* and *indicators*.⁶ Indicators can be both qualitative and quantitative. The important point is that indicators are more proactive. Rather than waiting for an accountant to give them the score, companies that use indicator-based performance management are measuring their progress throughout their value creation process.

A good way to understand the importance of indicators is to think about the way most professional money managers build portfolios. The ultimate metric for a financial portfolio is performance. But how do money managers get the best performance? Most have an idea about the right balance they need in assets. So the starting indicators revolve around investment goals (growth, income, risk tolerance, etc.). Other indicators involve the size of a fund, specific investments and the fund managers. A change in any of these indicators is often a reason to reconsider and, often, to exit an investment (which is a good reason to track them periodically). External indicators are also considered, such as economic and financial market trends. All these indicators are, in the view of the portfolio manager, important drivers of the ultimate performance of a fund. Many of them, while not quantitative, are still objective. They can be identified and tracked. In fact, creating and tracking a framework of indicators is the main job of a professional money manager. Their use of indicators helps them deliver on the bottom line metric of annual portfolio performance.

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Performance Indicators for Innovation

In a similar way, CIO's and corporate leaders need to create and track performance indicators for their innovation portfolio. Rather than waiting until the end to demonstrate the effectiveness of their efforts through revenues and profits, an innovation leader should start measuring from the beginning, with the intellectual capital roots of innovation. Indicators should be designed around questions such as:

CIO's and corporate leaders need to create and track performance indicators for their innovation portfolio

- **Human Capital:** Do we have the right combination of people with the right competencies? Do we have an innovative culture? The right management skills? Means of renewing and developing new skills? Clear understanding of risk?

- **Structural Capital:** Do we have the right knowledge set and right processes (including an innovation process) to deliver on innovation opportunities? Means of learning and developing new knowledge? Clear understanding of risk?
- **Relationship Capital:** Do we have the right customers and the right external network? Does our brand support our strategy? Clear understanding of risk?

Just as money managers must find indicators that drive the ultimate performance of their portfolio, so too must CIO's identify and track indicators that describe the right conditions for strong performance of their innovation portfolios. Many of the indicators will *describe*, rather than *quantify*, the right conditions but the lack of quantification does not diminish their importance or value to innovation performance management.

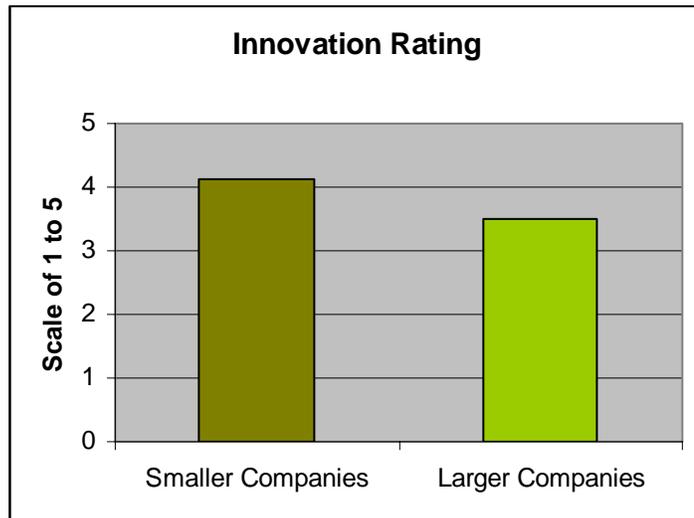
Creating an Innovative Organization

Innovation is not just about *harvesting* ideas but also *cultivating* the innovation ecosystem that will yield a continuous stream of new, useful ideas. This ecosystem must develop personnel, create repeatable processes, preserve intellectual property, connect with customers and create strong external networks. True long-term competitiveness requires that companies look beyond innovation as a process to also identify, assess and actively manage these underlying intellectual capital drivers of innovation. This requires an expanded view of performance measurement that is built on a strong understanding of the key indicators of ultimate innovation performance. Based on our survey, most organizations have not yet fully mastered this new reality.

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Lessons from America's CIO's

The CIO's we surveyed work at a broad range of corporations. The respondents were evenly distributed across the spectrum from Fortune 500 corporations (26%) to \$100+ million corporations (22%) and private small and medium enterprises (52%). The smaller companies gave themselves a much higher innovation rating of 4.14 on a scale of 5 versus 3.5 for the larger companies. Beyond this basic difference, however, there was a significant degree of consistency in most responses across all sizes of company. Those differences that did exist are detailed below.



Thirty percent of the responding companies make and sell a tangible product. The remainder sells services ranging from finance to IT and consulting. Although it is often hard to distinguish entire corporation's operations as business (B2B) or consumer-focused (B2C), 17% of the responding companies had a clear B2C orientation.

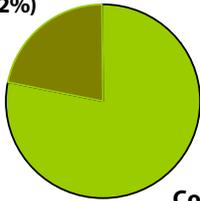
New to the Role But Not to the Company

The CIO's in this study were overwhelmingly (92%) the first person to hold this position in their company. The CIO's had an average tenure in their jobs of 2.2 years, with the longest tenure being six years. There were only two CIO's that were hired from outside the company (one of whom replaced a prior CIO). Prior to becoming CIO, respondents held jobs varying from COO, human resource officers, Chief Knowledge Officer, and Director of Intellectual Capital.

CIO: It would be hard to come in from the outside and be effective.

CIO's are Truly "C" Level Executives

Functional Title (12%)



Corporate Title (78%)

For 78% of the respondents, CIO was a corporate title. The remaining 22%, while using a "functional" title of CIO, also held other corporate titles such as Director of Innovation and Research, VP Business Innovation

Center, and Chief Improvement Officer. The role of one CIO was recently broadened to include overall corporate strategy.

As a "C" level officer, these CIO's are all members of the senior management of their businesses. In the larger companies, all the CIO's reported to a CEO, President or Vice Chair. In private SME companies, it is more common (58%) for the CIO to be a principal or senior manager rather than reporting to the CEO.

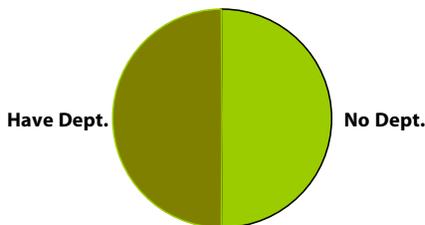
Seventeen percent of the CIO's worked in media or consulting firms where the role of the CIO is to guide innovation at the company's client firms, as opposed to their own. Their experience with multiple clients gave this group of respondents a broader perspective.

CIO: Beyond our team, we also use an external network of scholars and high level thinkers to harness new ideas.

CIO: Our innovation clients don't care about the processes; their focus is on how much does it cost and when will you get it done?

Half Work Without Departments

There was a 50-50 split between the CIO's that headed a department for innovation and those that had no direct reports. This proportion was consistent for all sizes of companies. One CIO with no direct reports actually interfaces with innovation champions in 85 different business units.



Rationale for Appointing a CIO

There was no dominating reason that the CIO position was created:

	CATALYST FOR CREATING THE ROLE*
22%	Sharpen corporate focus on innovation
22%	"We are an innovative company"
22%	The role is an outgrowth of personal development
13%	Corporate growth goals
13%	Desire to improve customer relationships
9%	Need for change, move technology out of the labs

*CIO's could give multiple answers to this question, answers shown do not total 100%

CIO: Without having a name and organization around it, it wouldn't get done.

It was interesting that, when asked about the corporate rationale for creating their position, a number of the CIO's (all but one from larger companies) talked about how their career paths and personal development led them to be chosen for this new role. These CIO's have taken a personal interest in the field of innovation and have helped their companies improve their focus and approach to making it happen.

CIO: In order to take my role to the next level, I have enrolled in a MS in Creativity and Change Leadership.

The What and How of Innovation

The CIO's were asked an open question about what innovation initiatives they were undertaking. In order to better understand their answers, we divided them into two categories: Business Innovation (what they are doing) and Innovation Strategies (how they are doing it).

CIO: We are chronically challenged by the need to be in the moment and today-based but at the same time developing ideas, products, services for the long term.

-Business Innovations

Many of the answers about innovation initiatives reflected efforts to innovate specific aspects of the corporation. The following categorizes their responses according to the type of business initiatives underway:⁷

FOCUS OF BUSINESS INNOVATION INITIATIVES*	
48%	Creating new products or services
22%	Better meeting needs of existing or potential new customers
22%	Cultivating new channels or points for connecting with customers
17%	Building on existing offerings to deliver derivative offerings
17%	Changing the form, function or activity of firm
13%	Redesigning the customer experience
13%	Improving the efficiency and effectiveness of core processes
13%	Creating network-centric integrated offerings
4%	Integrated offerings into broader solutions
*CIO's could give multiple answers to this question, answers shown do not total 100%	

There was no concentration of any specific kind of innovation among different sizes of companies.

-Innovation Processes and Strategies

In addition to Business Innovation initiatives, many respondents also identified specific innovation process or strategy initiatives underway at their companies:

INNOVATION PROCESS OR STRATEGY INITIATIVES*	
30%	Strengthen innovation processes (increased probability of success and/or decreased cost of commercialization)
17%	Perform research (markets, client needs, best practices)
4%	Knowledge management, social networks, balanced scorecard, thought leadership, strengths-based management
*CIO's could give multiple answers to this question, answers shown do not total 100%	

In this category, there was significant differentiation between the larger and smaller companies. Seventy three percent of the large companies surveyed are engaged in initiatives related to innovation processes compared with just 25% in the smaller companies. This is not surprising

CIO: Once a year, we have an innovation-fest. We identify and brainstorm for the intellectual property that we need. Do we invent it or buy it?

CIO: We would like to have a systematic and process-driven methodology versus the present episodic and case-by-case review system.

given the need for stronger processes in larger corporations. Equally interesting is that there was no correlation between CIO's with departments (versus the "Lone Rangers") and their likelihood to focus on innovation processes.

Very few CIO's reported specific initiatives aimed at building intellectual capital as the base of the innovation ecosystem. The few initiatives that were cited focused on a single aspect of intellectual capital, rather than a portfolio approach. These initiatives included knowledge management, social networks, balanced scorecard, thought leadership and strengths-based management.

CIO: We try to instill a culture of ideas by trying to give people time to think, initiating an award system to reward ideas.

People are the Principal Challenge

However, it is clear from the challenges faced by CIO's, that intellectual capital is important to the success in innovation:

CIO: Change is easier because we have a clearly articulated mission.

CHALLENGES*	
35%	Getting enough of the right people with the right competencies and talent
30%	Money
17%	Culture that supports change
13%	Focus, time, risk avoidance, immature innovation processes, balancing short and long term
9%	Large company issues such as bureaucracy and working across silos
*CIO's could give multiple answers to this question, answers shown do not total 100%	

The current *initiatives* underway at the companies surveyed dealt primarily with a business or a process goal. Yet the biggest *challenges* were overwhelmingly related to people and cultural issues. If you add all the challenges except money, these human capital issues add up to a whopping 69%. To date, these pressing human capital challenges have not yet been addressed with new innovation initiatives. This means that a lack of focus on the intellectual capital roots of innovation could be limiting the overall success of innovation efforts.

Information Needs

The top information need cited by the CIO's was focused on process. However, the remaining answers reflect a broader perspective and include information needs such as competencies, strategies, customer and market knowledge.

	INFORMATION NEEDED BY A CIO
39%	Innovation processes/metrics
30%	Talent/competencies
26%	Strategies and goals
17%	Company knowledge, customer insights, market knowledge
9%	Success factors, culture, network
4%	Risk assessment
*CIO's could give multiple answers to this question, answers shown do not total 100%	

These broad information needs seem to indicate that the CIO's do seek to understand the importance of the innovation ecosystem, even if they are not yet addressing them actively with identified initiatives.

Measures of Success

In contrast, the measures of success that the CIO's are using are concentrated almost exclusively toward output. When asked, "how will you measure your innovation success," the leading responses were:

	MEASURES*
43%	Revenue
26%	Earnings
22%	Market acceptance/life of product
13%	Attitude/culture
13%	Customer satisfaction
9%	ROI
*CIO's could give multiple answers to this question, answers shown do not total 100%	

With the exception of attitude/cultural metrics, the dominant measures of success cited by the CIO's all had to do with financial results of innovation (78%) through revenue, profits or ROI. While financial metrics are the bottom line for any business venture, they are not nearly as powerful as leading indicators that help leaders support and manage innovation in a proactive way to ensure that it ultimately does deliver financial returns. Only one CIO reported using, "process metrics such as what are the capabilities, how strong is the system, technological strengths and how fast ideas move to market."

Intellectual Capital Assessment

Since intellectual capital is the core driver of innovative capacity, we asked the CIO's about their intention to assess it. The responses were:

	PLAN TO ASSESS IC?*
39%	No plans
35%	Knowledge/structural capital only
13%	Yes
9%	Human capital only
*CIO's could give multiple answers to this question, answers shown do not total 100%	

CIO: We are working toward IC assessment but we have a long way to go

Only 13% of the companies surveyed currently plan to measure their intellectual capital. Several reported that they would use internally-developed questionnaires or evaluations by senior management. Another intended to perform an innovation audit. Of the 39% of the firms that do not plan to measure IC, roughly one third made that decision based on the fact that they had not yet found subjective, quantitative metrics to do so.

Please note that we did not offer a definition of intellectual capital unless we were asked to do so. Based on their answers, we believe that many of the CIO's were not familiar with the broad definition of IC that includes human, knowledge and relationship capital. In fact, none of the respondents mentioned relationship capital and/or networks in relation to intellectual capital although these and many other aspects of intellectual capital were mentioned individually in relation to information needs (see discussion of information needs above).

CIO: We probably don't need to evaluate IC because we know that we are smart

Toward a More Innovative Organization

This survey provided a valuable view of how CIO's are leading innovation in their companies. It is a rich source for companies that (even without CIO's) are striving to become more innovative. The results demonstrate that most CIO's appreciate the importance of managing innovation as a process. However, fewer are looking deeper to assess and strengthen the intellectual capital roots of innovation. None of the CIO's are actively managing and measuring the full IC portfolio including human, knowledge and relationship capital.

Some of the lessons from this survey include:

- Understand the difference between deliberate innovation processes and the encouragement of emergent innovation strategies—*Pursue both goals*
- Don't just rely on financial metrics to measure your success—*Identify and track performance indicators that give you an early warning on your progress toward financial success.*
- Emergent strategies result from a good innovation ecosystem based on a balanced portfolio of intellectual capital resources—*Assess your intellectual capital as a portfolio for maximum success.*

About IC Rating

IC Rating is a tool that assesses the full intellectual capital portfolio of a corporation. It examines the current status, strength of renewal efforts and risk of an organization's IC portfolio. Ratings are standardized so they are comparable over time and across different organizations. Competitive benchmarking is available. Ratings take just six weeks and a limited amount of company time to complete. For more information, visit www.icrating.com.

The tool was originally developed in Sweden and is today used in more than 20 countries around the world. The leader of the U.S. IC Rating community is Trek Consulting LLC, a strategy consulting firm. For more information on us, visit www.trekconsulting.com.

¹ Trek Consulting LLC collected the names of roughly 60 CIO's via media and internet searches. We contacted all 60 by telephone. Of these, 10 of the CIO's had left the company and/or the company no longer had a CIO. Of the 50 with confirmed CIO's, we were able to survey 23, a 46% response rate. Based on our conversations with the CIO's, this unusually high response rate reflected their own interest in understanding the practices of their fellow CIO's.

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³ Henry Mintzberg, Joseph Lampel, and Bruce Ahlstrand, Strategy Safari: A Guided Tour Through The Wilds of Strategic Management, Free Press, 1998.

⁴ Thomas A. Stewart, The Wealth of Knowledge: Intellectual Capital and the Twenty-First Century Organization, NY: Random House, 2001, p. 183.

⁵ "Managing for Creativity," Harvard Business Review, July-August 2005.

⁶ Bernard Marr, presentation on CFO.com, http://www.cfo.com/webcasts/index.cfm/1_eventarchive/6969866

⁷ This classification system was inspired by the article, "The 12 Different Ways for Companies to Innovate," *MIT Sloan Management Review*, Spring, 2006, pp.75-81.